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Abstract

HEAT TRANSFER WITH ORGANIC FLUIDS *

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Using a test channel with a circular cross-section of 12 mm internal diameter the following heat transfer correlation, valid to about $\pm$ 6 p. 100, was determined for the terphenyls OMP and OM2 with 0, 10, 20 or 30 p. 100 of high polymers : $Nu_b = 0.00835\ Re_b^{0.9}\ Pr_L^{0.4}$. This correlation was established with fluxes ranging from 50 to 100 W/cm^2, temperatures from 290 to 420°C and Reynolds number from 30 000 to 350 000.

8 long-term tests were carried out (250 to 1000 hours continuous running) to determine how deposition on the heating surfaces affects the exchange coefficient. The loops is made of stainless steel except for one part in soft steel. No deposits are observed even if the terphenyl contains 30 ppm of chlorure, while on the other hand deposition is appreciable when heavy substances containing combined oxygen are added.

* with the help of MM. A. MICHEL and A. TEYTU in building the loops

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